

## HEAT TRANSFER PROBE

### Abstract of the Disclosure

Apparatuses, systems, methods, and computer code for, among other things,  
5 monitoring the health of samples such as the brain while providing local cooling or  
heating. A representative device is a heat transfer probe, which includes an inner channel,  
a tip, a concentric outer channel, a first temperature sensor, and a second temperature  
sensor. The inner channel is configured to transport working fluid from an inner inlet to  
an inner outlet. The tip is configured to receive at least a portion of the working fluid  
10 from the inner outlet. The concentric outer channel is configured to transport the  
working fluid from the inner outlet to an outer outlet. The first temperature sensor is  
coupled to the tip, and the second temperature sensor spaced apart from the first  
temperature sensor.